

## Math 7 Core Curriculum Map

	Standard	Content Objective	Process Standard/Objective	Suggested materials/strategies
September	Number Sense and Operation Algebra Number Sense and Operation	<b>1.1.2</b> - Use various methods of estimation to determine reasonableness <b>2.3.2</b> - Identify information in a problem as needed or not needed <b>1.1.1, 2.3.1</b> - Use hands on models and sketches to represent a number in decimal, fraction, and percent form. <b>1.1.1</b> - Determine decimal, fraction and percent form of a number <b>1.3.1</b> - Compare and plot on a number line rational numbers in fraction, decimal and % form <b>1.1.1,2</b> - Apply operations with fractions, decimals, and percents in problem solving <b>1.3.2</b> - Predict outcomes of operations with rational numbers (e.g., multiplying by a fraction will result in a smaller number) <b>1.4.4</b> - Apply order of operations in problem solving <b>1.2.1, 1.4.2</b> - Exponential numbers including squares and square roots of perfect squares and powers of 10 <b>1.2.1</b> - Scientific notation	<b>Problem Solving:</b> Estimate, check for reasonableness, eliminate possibilities, make a model and simulation <b>Reasoning:</b> examine patterns, identify information as needed or not, draw reasonable conclusions, make and investigate mathematical conjectures <b>Communication:</b> express ideas to peers, use precise math language and notation <b>Connections:</b> establish connections using real-world situations, physical models, pictorial representations, explore historical and multicultural contributions <b>Representation:</b> Represent verbally and numerically, using appropriate symbols, use graphing calculator apps, use models and manipulatives	Newspaper Ads, calculators Geoboards, graph paper, calculator, Pattern Blocks, cards, dice, Centimeter Cubes Cooperative Structures, number line, Cards, Dice, graphing calculator, Student Formations Linker or Centimeter Cubes cards dice, calculator, guess and check, pattern blocks, graph paper linker cubes, PEMDAS centimeter cubes, sketches calculator Cooperative Structures, graphing calculator,
October	Number sense and operation Algebra	<b>1.3.6,7,9</b> - Multiplicative Identity and properties of 0 <b>1.3.5</b> - Apply commutative and associative properties <b>1.4.1</b> - Apply factors and divisibility rules <b>1.4.1</b> - Apply concept of “Relatively Prime” in working with rational numbers <b>1.4.1</b> - Apply prime factorization in finding GCF and LCM in problem solving and connections to life <b>1.3.8</b> - Investigate and apply Multiplicative Inverse <b>2.2.7</b> - Write ratios and apply fraction notation and compare two ratios as a proportion	<b>Problem Solving:</b> Use counter examples, make a model or simulation, clarify concept with questions, solve a simpler problem <b>Reasoning:</b> make and investigate mathematical conjectures, formulate counter examples <b>Communication:</b> organize and consolidate information through group discussion <b>Connection:</b> use physical models and pictorial representations <b>Representation:</b> use a variety of visual representations such as physical models, tables	Linker cubes, Krypto, cards Centimeter Cubes Centimeter Cubes Who Has/We have? Pattern Blocks, Centimeter Cubes, Graphing Calculator Geoboards, graph paper, Pattern Blocks, Fraction Tiles, cards Centimeter Cubes or Color Tiles, graph paper, Student Formations

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November	<p>Algebra Number sense and Operation</p> <p>Geometry</p>	<p><b>2.2.7</b> - Solve a variety of problems using proportional reasoning (proportions)  <b>1.1.1</b> - Understand the need for integer representation in life  <b>1.1.1</b> - Compare integers, understand and find opposites  <b>1.3.7</b> - Recognize and apply additive inverse  <b>1.1.1</b> - Perform and apply operations with integers</p> <p><b>3.2.1,2</b> - Graph integers and identify coordinates on a rectangular coordinate system</p>	<p><b>Problem solving:</b> propose alternative approaches, consider the alternative thinking of others, look for patterns, use proportional reasoning  <b>Reasoning:</b> explain and justify procedures, draw reasonable conclusions  <b>Communication:</b> use precise language and notation  <b>Connections:</b> find applications in newspapers, magazines, internet  <b>Representation:</b> use models, physical representations, graphs</p>	<p>include percent, sales ads, body proportions, recipes, Write a story using integers, Stock market  AlgeBlocks, number line, graphing calc.  Number line, Student Formations  AlgeBlocks, number line, Zero Pairs,  AlgeBlocks, Walking the Number line  graphing Calculator, cards  graph paper, maps, student formations</p>
December	<p>Algebra</p> <p>Number sense and Operation</p>	<p><b>2.1.1,2,3</b> - Extend and create numerical sequences and patterns including those derived from physical models  <b>2.3.1</b> - Use a physical model to represent a variable expression  <b>2.2.1, 2.1.1</b> - Write variable expressions to describe patterns  <b>2.2.2,3</b> - Translate algebraic expressions into words and words into algebraic expressions  <b>2.2.5</b> - Evaluate expressions substituting given values  <b>1.3.4</b> - Demonstrate Distributive Property using a variety of manipulatives and symbolic representations, both numerical and variable</p>	<p><b>Problem solving:</b> draw a picture, look for pattern, solve a simpler problem, create numerical sequences, make a list/table, use reflective questions, use non routine problems  <b>Reasoning:</b> explain and justify procedures, e.g., What leads you to this?  <b>Communication:</b> oral presentation, journal entries, express ideas clearly  <b>Connections:</b> establish connections among real-world situations, physical models, mathematical expressions, explore historical contributions of Pascal and Fibonacci  <b>Representation:</b> use physical models, visualizations and symbolic notation, represent problems numerically and algebraically</p>	<p>Pattern blocks, toothpicks, Fibonacci, triangulation, graphing calculators, Color Tiles or centimeter cubes  see above, AlgeBlocks  AlgeBlocks, Pattern Blocks, graphing calculators, centimeter cubes  Cooperative Structures  graphing calculator (store key), AlgeBlocks, color tiles, counters, Hands-On Equations</p>

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January	<p>Number sense and Operation</p> <p>Algebra</p> <p>Measurement</p>	<p><b>1.4.2</b> - Recognize and apply inverse relationships of addition and subtraction, multiplication and division, squares and square roots (e.g., multiplying by <math>\frac{1}{2}</math> is the same as dividing by 2).</p> <p><b>2.2.4</b> - Solve one step, single variable equations including rational numbers. Verify using a physical model.</p> <p><b>2.2.6, 2.3.1</b> - Solve two step, single variable equations and inequalities</p> <p><b>2.3.3</b> - Using graphs and tables, explain and describe changes in related quantities.</p> <p><b>4.1.1,4</b> - Measure using appropriate customary &amp; metric measurements (Direct measurements)</p> <p><b>4.2.1</b> - Estimate measurements for reasonableness using common benchmarks (e.g., mass of a paper clip is one gram)</p>	<p><b>Problem solving:</b> choose appropriate operations, guess and check, work backwards, identify counter examples, solve a variety of multi-step problems, make model/simulation, applications and patterns, estimate to determine reasonableness</p> <p><b>Reasoning:</b> formulate counter examples, identify conclusions as valid or invalid</p> <p><b>Communication:</b> express ideas coherently and clearly, using appropriate language and notation</p> <p><b>Connections:</b> use physical models, pictorial representations and real-world situations including those outside the math classroom and in other curricular areas</p> <p><b>Representation:</b> represent problems verbally, numerically, algebraically, use models, manipulatives and measurement tools and objects, and technology</p>	<p>Think-Team-Share, Rally Coach, Hands on Equations</p> <p>centimeter cubes, Algeblocks</p> <p>Hands on Equations</p> <p>Hands on Equations</p> <p>Overhead graphs and tables. Hands on investigations. USA Today snapshot site</p> <p>rulers, measuring tapes, containers for measuring capacity, scale, etc.</p> <p>Common objects and distances</p> <p>Metric chart, measuring tools</p>
February	<p>Measurement</p> <p>Geometry</p> <p>Measurement</p> <p>Geometry</p> <p>Measurement</p> <p>Algebra</p>	<p><b>4.1.2</b> - Convert one unit to another within the same system (e.g., miles to feet)</p> <p><b>3.1.4,5</b> - Distinguish between lines, segments, and rays, draw parallel, perpendicular, and other intersecting lines</p> <p><b>3.3.1</b> - Identify lines of symmetry</p> <p><b>3.3.2</b> - Transform geometric shapes using slides, rotations and reflections</p> <p><b>4.1.4</b> - Measure and classify angles</p> <p><b>3.1.1,4</b> - Classify and sketch common two dimensional (plane) objects using information about sides and angles</p> <p><b>4.1.4, 4.2.4</b> - Measure and use formulas to determine perimeter of polygons and circumference of circles</p> <p><b>4.2.3</b> - Develop formulas for area of parallelograms including squares and rectangles, and of triangles using hands-on experiences and sketches</p>	<p><b>Problem solving:</b> look for a pattern, draw a picture or diagram, check for reasonableness, identify counter examples, develop clarification and understanding of concepts</p> <p><b>Reasoning:</b> explain and justify procedures, make and investigate conjectures, formulate counter examples, identify information as necessary or extraneous</p> <p><b>Communication:</b> organize and consolidate math information using written reports, journal entries, group discussion</p> <p><b>Connections:</b> Formulate real-world situations that require extended investigations including multicultural and historical contributions, establish connections between mathematics and physical models</p> <p><b>Representation:</b> represent problems geometrically, use a variety of visual representations</p>	<p>Geoboards, Pattern Blocks, mirrors</p> <p>graph paper, centimeter cubes, mirrors, graph paper, geoboards</p> <p>protractors, string. Student Formations. -Find examples in architecture, pictures</p> <p>card stock cut outs, pictures, Student Formations</p> <p>tape measure, rulers, string, circular objects, Geoboards Pattern Blocks, Cut-Out circles and polygons, create data</p> <p>Geoboards, Pattern Blocks, tables to find patterns, graph paper</p>

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March	<p>Measurement</p> <p>Geometry</p> <p>Measurement</p> <p>Measurement, Geometry Algebra</p> <p>Geometry Data Analysis and Probability</p>	<p><b>4.2.4</b> - Determine areas for triangles, parallelograms including squares and rectangles, and circles using formulas</p> <p><b>3.3.3</b> - Sketch and use a net to construct and classify three dimensional shapes using information about angles and sides</p> <p><b>4.2.4</b> - Determine volumes of right rectangular and triangular prisms and cylinders using formulas</p> <p><b>4.2.4</b> - Measure surface area of rectangular and triangular prisms and cylinders</p> <p><b>4.2.4</b> - Use formulas to determine surface area of right rectangular and triangular prisms and cylinders</p> <p><b>4.1.4</b> - Select appropriate units of measurement to measure volume. Use these measurements to determine</p> <p><b>3.1.4</b> - Identify congruent figures</p> <p><b>5.1.1</b> - Write appropriate questions given graphs, tables and plots</p> <p><b>5.1.1</b> - Identify and formulate appropriate questions for data collection and collect data</p>	<p><b>Problem solving:</b> reflect and evaluate mathematical thinking processes, draw a diagram or picture, check for reasonableness, use proportional reasoning, make a model/simulation</p> <p><b>Reasoning:</b> link problem solving to a sequence of steps, explain and justify problem solving procedures</p> <p><b>Communication:</b> use precise language and notation, ask questions such as, "Did anyone think about this in a different way?" "How are these related?"</p> <p><b>Connections:</b> find applications in magazines, books, television, real-world, explore historical contributions, establish connection between mathematics and physical models</p> <p><b>Representation:</b> use a variety of visual representations, use physical models</p>	<p>Cooperative structures, calculators, pictures</p> <p>Nets to cut out and tape together geometry solids, centimeter cubes</p> <p>scales, measuring containers and tools</p> <p>Geo Solids, centimeter cubes,</p> <p>Cooperative Structures, calculators various objects and paper to cover objects, measuring tapes</p> <p>calculators</p> <p>graph paper, pattern blocks, centimeter cubes, geoboards, pictures</p>
April	<p>Data Analysis and Probability</p>	<p><b>5.1.2</b> - Represent collected data using frequency tables, line plots bar graphs, line graphs, stem and leaf plots and circle graphs.</p> <p><b>5.1.3 A)</b> - Display the same set of data using two or more representations</p> <p><b>5.1.4 B)</b> - Compare two similar sets of data on the same type of graph</p> <p><b>5.1.5 C)</b> - Recognize how changing the scale affects the appearance of data</p> <p><b>5.1.6 D)</b> - Make predictions of trend and conjectures from the sample population</p>	<p><b>Problem solving:</b> select appropriate methods for computing, make a list, table or graph, solve simpler, related problems, open ended and extended problem solving projects, propose, critique and value alternative approaches</p> <p><b>Reasoning:</b> examine patterns, note irregularities, realize that observing a pattern or conjecture is not proof, identify information as sufficient</p> <p><b>Communication:</b> written and oral presentations, express ideas coherently to peers, teachers and others</p> <p><b>Connections:</b> formulate real-world situations requiring extended investigations, recognize and apply mathematics outside the classroom</p> <p><b>Representation:</b> represent using graphing calculators, graph paper and other visualizations</p>	<p>pictures, graphs, tables, graphing calculators</p> <p>graphing calculator, protractors, data sources, pictures, tables, overheads</p> <p>graphing calculators</p> <p>graphing calculators</p> <p>graphing calculators, graphs</p> <p>experiments, tables, graphs</p>

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May	Data Analysis and Probability	<p><b>5.2.1,3-</b>Conduct simple event probability experiments and represent results in ratio, decimal and percent form. Include:</p> <p><b>5.2.2 A)</b> Compare Individual, small group, and large group results</p> <p><b>5.2.4 B)</b> Identify results as a number between 0 and 1</p> <p><b>5.2.5 C)</b> Compute probabilities using methods such as lists, tree diagrams, area models such as finding probability of area on a spinner</p> <p><b>5.2.6 D)</b> Recognize the sum of probabilities of all outcomes is 1 and the sum of the probability and its complement are 1</p> <p>-Review for CRT</p>	<p><b>Problem solving:</b> select and use appropriate methods for computing, draw a diagram, look for a pattern, make a simulation, check for reasonableness, make a list</p> <p><b>Reasoning:</b> examine patterns, make and investigate mathematical conjectures, identify conclusions as valid or invalid, explain and justify procedures</p> <p><b>Communication:</b> use group discussion, precise language and notation</p> <p><b>Connections:</b> establish connections among mathematical expressions and real-world situations, recognize and apply mathematics outside the classroom</p> <p><b>Representation:</b> use technology, models and manipulatives, verbally and numerically</p>	<p>grab-a-handful, graphing calculator, dice, cards, spinners, marbles, coins, little cars etc</p> <p>Cooperative Structures</p>
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